identifying the presence of at least one condition of blockage, restriction, abnormality, and substantially unobstructed free passage of the pulmonary circulation path.

(Amended) A method according to Claim 1, wherein the controlled injection rate is less than about 2 cc/s.

20. (Amended) A method according to Claim 1, further comprising:

providing a container configured to hold the first injectable quantity of polarized gaseous ^{129}Xe therein;

preparing the container to hold the first injectable quantity of polarized gaseous ^{129}Xe therein by introducing then expelling CO_2 from the container thereby leaving residual traces of CO_2 therein; and then

introducing the first quantity of polarized gaseous ^{129}Xe into the container prior to the step of injecting.

Please add the following new claims.

89. (New) A method according to Claim 1, wherein the first quantity of injectable polarized gaseous ^{129}Xe is formulated for *in vivo* human administration.

90. (New) A method according to Claim 1, wherein the first quantity of injectable polarized gaseous ^{129}Xe is in a quantity less than about 5 cubic centimeters.

91. (New) A method according to Claim 1, further comprising evaluating the effectiveness of a therapeutic treatment based on the identifying step.

92. (New) A method according to Claim 20, wherein the preparing step is carried out by pressurizing the container with a quantity of CO_2 and then evacuating the container to remove the CO_2 therefrom.

93 ~~93.~~ (New) A method according to Claim 92, further comprising repeating the pressurizing and evacuating steps a plurality of times to reduce the amount of oxygen in the container prior to the step of introducing the gaseous polarized ^{129}Xe therein.

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94 ~~94.~~ (New) A method according to Claim 13, further comprising obtaining an MRI ventilation image based on the inhaled polarized gas.

95 ~~95.~~ (New) A method according to Claim 94, wherein the generating step comprises generating a perfusion image based on the activity of the polarized 129Xe after the injecting step, and further comprising combining the ventilation image with the perfusion image to generate a combination image.

96 ~~96.~~ (New) A method according to Claim 95, wherein the inhaled polarized gas comprises gaseous ^{129}Xe in a second quantity that is larger than the injected quantity.

97 ~~97.~~ (New) A method according to Claim 94, further comprising calculating the value of the ratio of the volume versus flow rate of the circulatory system of the subject.

98 ~~98.~~ (New) A method according to Claim 21, wherein the surfactant introduction is carried out so that the surfactant and ^{129}Xe are injected separately into the subject.

99 ~~99.~~ (New) A method according to Claim 21, wherein the subject is a human subject, and wherein the surfactant is injected *in vivo* to a human subject after the polarized gaseous ^{129}Xe is injected.

100 ~~100.~~ (New) A method according to Claim 8, wherein the controlled injection rate is between about 1-5 cc/s.

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101. (New) A method according to Claim 1, wherein the obtaining step is commenced within about 5-25 seconds after the initiation of the injecting step.

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